CALIFORNIA DIVISION OF MINES AND GEOLOGY

FAULT EVALUATION REPORT FER-93

Supplement No. 2
February 2, 1981

1. Name of fault.

"Montara Point" fault of Jack (1968).

2. Location of faults.

Montara Mountain 7.5-minute quadrangle.

3. Reason for evaluation.

Supplementary data received following completion of Supplement No. 1.

4. List of references.

Bedrossian, T.L., 1979, Seal Cove and related faults: California Division of Mines and Geology Fault Evaluation Report FER-93.

_____, 1980, Seal Cove and related faults: California Division of Mines and Geology Supplement No. 1 to Fault Evaluation Report FER-93.

Jack, R.N., 1968, Quaternary sediments of the Montara Mountain area, San Mateo County, California: Unpublished M.A. thesis, University of California, Berkeley.

Fairchild Aerial Surveys, 1941, Flight C-6660, numbers 5-7, black and white, 1:24,000 scale.

Lajoie, K.R., Weber, G.E., Mathieson, S., and Wallace, J., 1979, Quaternary tectonics of coastal Santa Cruz and San Mateo Counties, California, as indicated by deformed marine terraces and alluvial deposits in Coastal tectonics and coastal geologic hazards in Santa Cruz and San Mateo Counties, California: Field Trip Guide, Cordilleran Section of the Geological Society of America, 75th Annual Meeting, p. 61-80.

Smith, T.C., 1980, Fault hazard investigation of Montara Lighthouse Facility, a proposed hostel, in compliance with the Alquist-Priolo Special Studies Zone Act, Phase I: Unpublished report, Resource Protection Division, California Department of Parks and Recreation.

Weber, G.E., and Lajoie, K.R., 1980, Map of Quaternary faulting along the San Gregorio fault zone, San Mateo and Santa Cruz Counties, California: U.S. Geological Survey Open-File Report 80-907.

5. Summary of available information.

In her original report on the Seal Cove fault, Bedrossian (1979) refers to a subsidiary fault zone originally mapped by Jack (1968). Briefly summarizing from his report, Jack believed that movement had taken place along this fault during Pleistocene time. Lajoie, et al. (1979) suggested that a low scarp across the alluvial fan of Denniston Creek may have resulted from recent movement. However, Lajoie, et al. did not present a map showing the location of the scarp, and Bedrossian was unable to detect such a feature on aerial photographs or in the field.

Smith (1980) examined the seacliff where Jack's "Montara Point" fault was supposedly exposed. Smith was unable to detect any faulting of the well-stratified terrace deposits in the location shown by Jack on his Plate 2, a log of the seacliff. Smith further dispenses with each of Jack's lines of evidence supporting the existence of the fault.

Weber and Lajoie (1980) cite the existence of topographic features (primarily a right-lateral bend in a stream course) along the trend of Jack's fault, but could find no other evidence in the field to support the existence of a fault northwest of San Vicente Creek. However, they delineate a southwest-facing scarp across the fan of Denniston Creek, but do not extend it northwestward. Smith (1980) describes "one long, linear, rounded, main scarp about two feet in height, and a second, smaller scarp located a few tens of feet to the northeast. The former is visible most of the year in the agricultural fields. The latter is subtle enough that it could only be observed when the lighting conditions are near perfect (low-sun angle). However, neither escarpment can be traced northwest into the low hills."

6. Air photo interpretation.

The aerial photos available (U.S.D.A., 1941) were examined by Bedrossian (1979) and Smith (this report). Neither detected any features indicative of recent movement. However, the resolution of the photographs appears to be about four feet--that is, vertical changes less than four feet are not readily apparent. Thus, a two to three-foot high scarp would not normally be visible unless it coincides with other features.

7. Field examination.

The author lives in Montara, and frequently travels to Half Moon Bay via State Highway 1. The escarpment noted by Lajoie, et al. (1970), Smith (1980), and Weber and Lajoie (1980) is visible much of the year. Periodically, the escarpment is obscured by food crops, and it is best observed just after the crops have been harvested and the refuse plowed under.

8. Conclusions.

No conclusive evidence exists to support Jack's (1968) "Montara Point" fault as he shows it. A reasonably well-defined scarp does exist across the fan of Denniston Creek as mapped by Weber and Lajoie (1980). This scarp could conceivably be fault-produced (normal faulting inferred). However, it is odd in that the escarpment appears to be confined to the fan itself, and does not appear to extend into older deposits on either side.

9. Recommendations.

Since the scarp crossing the Denniston Creek fan has not yet been investigated to determine its origin, since part of the feature lies within an existing Special Studies Zone, and since it is conceivable that the feature is the

result of recent (Holocene) faulting, it is premature to recommend removal of all of the Special Studies Zone. Extensive revision of the SSZ is recommended. The scarp shown by Weber and Lajoie (1980) should be zoned approximately as shown on Figure 1 (in Supplement No. 2). All other recommendations of Bedrossian (1979 and 1980) remain unchanged.

10. Investigating geologist, date.

Theodore C. Smith
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February 2, 1981

TCS/clz

I agree with recommendations, but delineate zone across Denniston Cr. fan narrower (feature is well-defined).
EWH
2/16/81

Based on Weber and Lajoie, fault-like features west of main trace are due to landsliding. This is supported by Bedrossian (FER-93), Brabb (p.c., 4/14/81) and my own interpretation of photos and trench logs. Delete all faults west of main trace, except as shown by Weber & Lajoie. Use both Weber and Lajoie (1980) and Leighton for main trace.
EWH
4/15/81